aastex emulateapj5 epsf AGN FEEDBACK ON THE ICM CAVALIERE, LAPI & MENCI document

AGN Feedback on the Intracluster Medium A. Cavaliere and A. Lapi Astrofisica, Dipartimento di Fisica, Universitá 'Tor Vergata', Roma, I-00133 N. Menci Osservatorio Astronomico di Roma, Monteporzio Catone, I-00044 abstract Galaxy groups are quite underluminous in X-rays compared to clusters, so the intracluster medium has to be considerably underdense in the former. We consider this to be due to substantial energy fed back into the ICM when the baryons in the member galaxies condense into stars ending up in SNe, or accrete on to central supermassive black holes energizing AGNs. We compute the outflow and the blowout effects driven by the AGNs and the resulting, steep luminosity-temperature correlation $L_X - T$. We compare this with the SN contribution and with the X-ray data; the latter require the AGN energy to be coupled to the surrounding ICM at fractional levels around $5\,10^{-2}$. We link the $L_X - T$ behavior with the parallel effects of the AGN feedback on the gas in the host galaxy; we find that these yield a correlation steep up to $M_\bullet \propto \sigma^5$ between the galactic velocity dispersions and the central BH masses.